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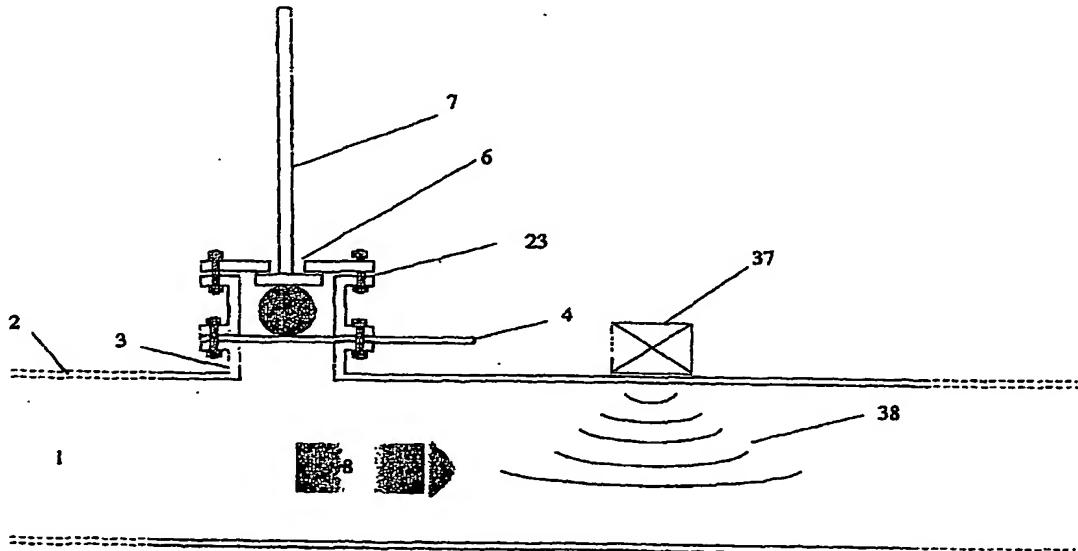
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(54) Title: LEAK LOCATOR



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(57) Abstract: A method of determining the presence and location of leaks in a pipeline (2) comprising inserting a leak location device capable of detecting and recording the occurrence of noise into the flow of fluid (1) within the pipeline (2); allowing the leak location device to travel through the pipeline (2) with the fluid flow; causing the leak location device to detect and record noise in the fluid; and causing the leak location device to record the time at which noise is detected. Generally the leak location device is retrieved from the pipeline (2) downstream to its insertion point.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/GB 03/05721

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01M3/24 G01M3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 884 624 A (DEAN HOWARD J. EN ET AL) 28 April 1959 (1959-04-28) non-unity document column 1 - column 3; figures 1,2 -----	1,17,28
X	US 3 691 819 A (ROBERT J. GUEST) 19 September 1972 (1972-09-19)	28-30,
Y	column 2, line 34 - column 4, line 55; figures 1,2 -----	32,33 12-16, 22,31
X	US 3 754 275 A (CARTER N.US ET AL) 21 August 1973 (1973-08-21) column 2, line 29 - column 4, line 63; figure 1 -----	1-4,9, 11, 17-21, 23-26 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the International search

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INTERNATIONAL SEARCH REPORT

Int'l Application No

PCT/GB 03/05721

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 508 433 A (WILLIAM M. BUSTIN) 28 April 1970 (1970-04-28) column 3, line 54 - column 6, line 2; figures 1,3,8 column 7, line 23 - line 38 -----	1-3, 9, 11, 17-20, 23,27
X	US 3 409 897 A (BOSSELAAR HENDRIK ET AL) 5 November 1968 (1968-11-05)	1-6, 9-11, 17-20, 23,27
Y	column 2, line 13 - line 16; figures 1,3,4 column 3, line 5 - column 5, line 10 -----	12-16, 22,31

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/05721

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB 03/05721

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 28-33

A leak location system comprising a leak detection device arranged to collect acoustical data and at least one monitoring means capable of transmitting signals and the leak detection device is capable of receiving the transmitted signals (claim 28).

2. claims: 1-27

A self contained leak location device having an oval shape suitable for travelling in a pipeline, wherein the center of buoyancy and the center of gravity are separated from one another along the long axis (claim 8).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/05721

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2884624	A	28-04-1959	NONE			
US 3691819	A	19-09-1972	CA CA DE JP NL	937318 A1 958110 A2 2200001 A1 51047359 B 7200039 A		20-11-1973 19-11-1974 20-07-1972 14-12-1976 06-07-1972
US 3754275	A	21-08-1973	CA DE FR GB NL	955216 A1 2244463 A1 2153933 A5 1346149 A 7212610 A		24-09-1974 22-03-1973 04-05-1973 06-02-1974 20-03-1973
US 3508433	A	28-04-1970	BE CH DE FR GB NL	691146 A 467446 A 1290773 B 1500664 A 1121824 A 6617566 A ,B		13-06-1967 15-01-1969 03-11-1967 31-07-1968 15-06-1967
US 3409897	A	05-11-1968	NONE			